

Appl. No. : 10/758,952
Filed : January 16, 2004

REMARKS

The May 4, 2006 Office Action was based upon pending Claims 23-29. This amendment adds new Claims 31-37. Thus, after entry of this Amendment, Claims 23-29 and 31-37 are pending and presented for further consideration.

Objections to Specification

The Examiner objected to the abstract of the disclosure because it contains the title of the invention. The Examiner also indicated that the title of the invention is not descriptive. By the foregoing amendment to the specification, Applicant has deleted the title above the heading of the abstract and amended the title as suggested by the Examiner.

Claim Rejections

The Examiner provisionally rejected Claims 23-25 and 27-29 under the judicially-created doctrine of obviousness-type double patenting as being unpatentable over Claims 9-14 of Applicant's co-pending U.S. Patent Application No. 10/760,126 in view of U.S. Patent No. 5,978,236 issued to Faberman, et al. ("the Faberman patent").

The Examiner rejected Claims 23-39 under 35 U.S.C. § 103(a) as being unpatentable over the Faberman patent in view of U.S. Patent No. 5,621,299 issued to Krall ("the Krall patent").

Provisional Double Patenting Rejection of Claims 23-25 and 27-29

Applicant acknowledges the provisional double patenting rejection; however, since no claims in the co-pending application have been allowed, a terminal disclaimer is not yet appropriate. Applicant will submit a terminal disclaimer when the identified claims have been allowed in both applications if the claims have not otherwise been amended to overcome the double patenting rejection.

Rejection of Claims 23-29 under 35 U.S.C. § 103(a)

The Examiner rejected Claims 23-29 under 35 U.S.C. § 103(a) as being unpatentable over the Faberman patent in view of the Krall patent.

Independent Claim 23

Focusing in particular on Claim 23 and the embodiment shown in Figures 1 and 3, a method for controlling battery power comprises the acts of selectively providing a first external power source (P1) or a second external power source (P2) to a device 108 coupled to a system power terminal (V-LOAD) and coupling an internal battery 110 to the system power terminal via a series-connected bi-directional transistor 300. The method further comprises charging the internal battery by regulating the bi-directional transistor to conduct a charging current in a first direction from the system power terminal to a positive battery terminal (V-BATTERY) during a charging mode and discharging the internal battery by regulating the bi-directional transistor to conduct a discharging current in a second direction from the positive battery terminal to the system power terminal during a discharging mode.

In contrast, the references cited by the Examiner do not use a bi-directional transistor to conduct both a charging current and a discharging current with respect to a battery. Referring to Figure 5 of the Faberman patent, a switch S1F is turned on and off at a desired duty cycle to conduct current pulses to charge a battery while a diode D4F in parallel with the switch conducts discharge current from the battery during fault conditions.

Applicant disagrees with the Examiner's suggestion that the combination of the switch and the diode is a bi-directional transistor. While the switch can be implemented with a transistor and the diode can also be implemented with another transistor, two separate transistors with different connections would be needed to implement the configuration shown in Figure 5 of the Faberman patent with one of the transistors (e.g., the switch) controlled by a Battery Charger Control to only conduct current pulses to charge the battery and the other transistor (e.g., the diode) dedicated to conduct an unregulated discharge current during fault conditions. The configuration shown in Figure 5 of the Faberman patent does not suggest a bi-directional transistor that is regulated to conduct both a charging current and a discharging current.

Because the references cited by the Examiner do not disclose, teach or suggest a bi-directional transistor that is regulated to conduct a charging current during a charging mode and regulated to conduct a discharging current during a discharging mode, Applicant asserts that Claim 23 is not obvious in view of the Faberman patent and the Krall patent. Applicant therefore

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respectfully submits that Claim 23 is patentably distinguished over the cited references and Applicant respectfully requests allowance of Claim 23.

Dependent Claims 24-29

Claims 24-29, which depend from Claim 23, are believed to be patentable for the same reasons articulated above with respect to Claim 23, and because of the additional features recited therein.

New Claims 31-37

New Claims 31-37 have been added to more fully define the Applicant's invention and are believed to be fully distinguished over the prior art of record.


Conclusion

In view of the foregoing, the present application is believed to be in condition for allowance, and such allowance is respectfully requested. If further issues remain to be resolved, the Examiner is cordially invited to contact the undersigned such that any remaining issues may be promptly resolved. Also, please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

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By: 
Sharon S. Ng
Registration No. 53,383
Attorney of Record
Customer No. 20,995
(949) 760-0404

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